

WE CLAIM:

1. A device for controlling a position of a lateral edge of a continuous web of a recording medium in a printer or copier, comprising:
 - a web retracting device operable to exert a restraining force on the web;
 - 5 an actuator mounted downstream of said web retracting device as viewed in a transport direction of the continuous web during normal printing operation, said actuator being operable to adjust a position of the lateral edge of the continuous web;
 - a web drive disposed downstream of said actuator which advances the continuous web in the transport direction against the restraining force of said retracting device;
 - 10 at least one transfer printing station downstream of said web drive which prints toner images on the continuous web; and
 - a take-off device downstream of said at least one transfer printing station which further conveys the continuous web for further processing;
 - a sensor in a region of said actuator which is operable to sense an actual position of the
 - 15 lateral edge of the continuous web and provide an actual signal;
 - a control device connected to compare the actual signal of said sensor with a desired signal corresponding to a desired position of the lateral edge of the continuous web and in case of a deviation to drive said actuator which changes a position of the lateral edge.
- 20 2. A device according to claim 1, wherein the desired position of the lateral edge is fixed at a location of said sensor.
- 25 3. A device according to claim 1, wherein said sensor determines measured values at predetermined distances along the continuous web, and wherein an average of said measured values is used by said control device as an actual signal for controlling the position of the lateral edge of the continuous web.
- 30 4. A device according to claim 3, wherein said average is one of a moving average and an exponential average.

5. A device according to claim 3, wherein said average is determined over a predetermined distance.

6. A device as claimed in claim 5, wherein said predetermined distance is a whole-
5 numbered multiple of a standard format length of a print page.

7. A device according to claim 6, wherein said standard format length is a 12-inch format, and wherein said multiple is three.

10 8. A device according to claim 1, wherein said actuator includes a rotary frame mounted so that by rotation of said rotary frame the position of the lateral edge of the continuous web can be adjusted.

15 9. A device according to claim 8, wherein said sensor is provided in a region of said rotary frame in an outlet region for the continuous web.

10. A device according to claim 1, wherein said sensor is a first sensor and further comprising:

a second sensor in a region of said retracting device which senses an actual position of the
20 lateral edge of the continuous web in said region to provide an actual second signal, and wherein said actual second signal is taken into account when controlling the lateral edge to a desired position in the region of said first sensor.

11. A device according to claim 10, further comprising:

25 a delay connected to receive said actual second signal of said second sensor to produce a delayed second actual signal that is delayed by a time which is required by the continuous web during transport from a location of said second sensor to a location of said first sensor.

30 12. A device according to claim 11, wherein said delayed actual signal of said second sensor is superimposed on a desired signal.

13. A device according to claim 9, wherein said retracting device includes a web
brake; and further comprising:
a second sensor provided shortly downstream said web brake as viewed in the transport
5 direction.

14. A device according to claim 9, further comprising:
a web supply provided in a web feed region as viewed in the transport direction, said web
supply including a lateral stop along which the lateral edge of the web is guided.

10 15. A device according to claim 1, further comprising:
a further sensor in a region of said at least one transfer printing station, said further sensor
sensing an actual position of the lateral edge of the continuous web to produce an
actual signal, and said actual signal of said further sensor being supplied to said
15 control device when driving said actuator.

16. A device according to claim 15, wherein an actual value/desired value
comparison is carried out between the actual signal of said further sensor and a desired signal,
the desired signal being fixed corresponding to a desired position of the lateral edge with
20 respect to a position of said further sensor, and a result of the comparison being fed to said
control device.

17. A device according to claim 16, wherein a desired value/actual value
comparison for the position of the lateral edge at a location of said further sensor takes place
25 in said control device and a first control deviation is determined, and further a desired
value/actual value comparison is carried out with respect to a location of said first sensor, the
afore-mentioned control deviation being taken into account as the desired value.

18. A device according to claim 15, wherein said further sensor is provided within
30 a region of ± 100 mm relative to a transfer printing location of said at least one the transfer
printing station.

19. A device according to claim 1, wherein said sensor is a line sensor in a form of a CCD sensor.

5 20. A method for controlling a position of a lateral edge of a continuous web of a recording medium in a printer or copier, comprising the steps of:
exerting a restraining force on the continuous web by a web retracting device;
adjusting a position of the lateral edge of the web downstream of said web retracting device
as viewed in a transport direction of the continuous web during a normal printing
10 operation by an actuator;
advancing the continuous web by a web drive downstream of said actuator in the transport
direction against the restraining force of said retracting device;
printing toner images on the continuous web downstream of said web drive by at least one
transfer printing station;
15 further conveying the continuous web by a take-off device downstream of said at least one
transfer printing station;
sensing an actual position of the lateral edge of the web by a sensor in a region of said
actuator and therefrom producing an actual signal;
comparing the actual signal of said sensor with a desired signal corresponding to a desired
20 position of the lateral edge of the continuous web by a control device; and
in case of a deviation driving said actuator which changes a position of the lateral edge.

25 21. A method according to claim 20, wherein the desired position of the lateral
edge is fixed at a location of said sensor.

22. A method according to claim 20, wherein said sensor determines measured
values at predetermined distances along the continuous web, and further comprising the step
of:
using an average of measured values as an actual signal for controlling the position of the
30 lateral edge of the web.

23. A method according to claim 22, wherein one of a moving average and an exponential average is used as said average.

24. A method according to claim 22, wherein said average is determined over a
5 predetermined distance.

25. A method as claimed in claim 24, wherein said average corresponds to a whole-numbered multiple of a standard format length of a print page.

10 26. A method according to claim 25, wherein a 12-inch format is used as the standard format length, and wherein the multiple is three.

27. A method according to claim 20, wherein said actuator includes a rotary frame, and further comprising the step of:

15 rotating said rotary frame to adjust a position of the lateral edge of the continuous web.

28. A method according to claim 27, wherein said sensor is provided in a region of said rotary frame in an outlet region for the continuous web.

20 29. A method according to claim 20, wherein said sensor is a first sensor and further comprising the steps of:

sensing an actual position of the lateral edge of the continuous web in a region of said
retracting device by a second sensor to produce a second actual signal, and
taking said second actual signal into account when controlling the lateral edge to a desired
25 position in a region of said first sensor.

30. A method according to claim 29, further comprising the step of:
delaying said second actual signal of said second sensor by a time which is required by the
continuous web during transport from a location of said second sensor to a location of
said first sensor.

31. A method according to claim 30, wherein said delaying step produces a delayed actual signal, and further comprising the step of:
superimposing said delayed actual signal of the second sensor on a desired signal.

5 32. A method according to claim 29, wherein said retracting device includes a web brake, and wherein said second sensor is provided downstream said web brake as viewed in a transport direction.

10 33. A method according to claim 29, further comprising the step of:
providing a web supply in a web feed region, said web supply including a lateral stop along which the lateral edge of the web is guided.

15 34. A method according to claim 20, further comprising the steps of:
sensing an actual position of the lateral edge of the continuous web by a further sensor in a region of the transfer printing station to produce a further actual signal, and
taking said further actual signal of said further sensor into account by said control device when driving said actuator.

20 35. A method according to claim 34, further comprising the steps of:
comparing an actual value/desired value between said further actual signal of said further sensor and a desired signal, said desired signal being fixed corresponding to a desired position of the lateral edge with respect to a position of said further sensor; and
feeding a result of the comparing step to said control device.

25 36. A method according to claim 35, wherein said comparing of the desired value/actual value for a position of the lateral edge at a location of said further sensor takes place in said control device and a first control deviation is determined, and
carrying out a further desired value/actual value comparison out with respect to the location of said first sensor, said control deviation being taken into account as the desired value.
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37. A method according to claim 34, wherein said further sensor is provided within a region of ± 100 mm relative to a transfer printing location of said at least one transfer printing station.

5 38. A method according to claim 20, wherein said sensor is a line sensor in a form of a CCD sensor.